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RESPONSE UNDER 37 C.F.R. § 1.116
EXPEDITED PROCEDURE
GROUP 2675
PATENT APPLICATION

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of

Ken-ichi TAKATORI, et al.

Docket No: Q53397

Appln. No.: 09/256,346

Group Art Unit: 2675

Confirmation No.: 9700

Examiner: A. Nelson

Filed: February 24, 1999

For: LIQUID CRYSTAL DISPLAY APPARATUS AND METHOD OF DRIVING THE SAME

REQUEST FOR RECONSIDERATION UNDER 37 C.F.R. § 1.116

ATTN: BOX AF
Commissioner for Patents
Washington, D.C. 20231

Sir:

In response to the Office Action dated June 4, 2002, reconsideration and allowance of the subject application are respectfully requested. Upon entry of this Request, claims 1-19 are pending in the application. Applicant respectfully submits that the pending claims define patentable subject matter.

Claims 1, 8, 10, 11 and 16-19 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Okada et al. (USP 4,800,382) in view of Applicant's admitted prior art. Claims 2 and 8 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Okada et al. in view of Applicant's admitted prior art and Kurematsu (USP 5,796,380). Claims 3-5 and 8 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Okada et al. in view of Applicant's admitted prior

art, Bonnett et al. (USP 6,075,506) and Kurematsu. Claims 6 and 8 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Okada et al. in view of Applicant's admitted prior art, Kurematsu and Kamiya et al. (USP 4,694,348). Claims 7, 9 and 12-15 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Okada et al. in view of Applicant's admitted prior art and Kamiya et al. Applicant respectfully submits that the claimed invention would not have been rendered obvious in view of the combined references.

Independent claim 1 recites a method for driving a liquid crystal display apparatus comprising the steps of: scanning successively a plurality of scan lines in a first field of a frame for display; simultaneously resetting the scan lines in the first field after the scan lines are successively scanned in the first field; scanning successively the scan lines in a second field of the frame for display in an order reverse to that in the first field; and simultaneously resetting the scan lines in the second field after the scan lines are successively scanned in the second field. The method of claim 1 is illustrated in Figure 10 of the present application.

The Examiner maintains that Okada et al. (Okada) discloses all of the features of independent claim 1 except that "the scan lines are successively scanned in a second field in an order reverse to that in the first field", which the Examiner asserts is disclosed by Applicant's admitted prior art (Figure 7). In the Amendment filed March 27, 2002, Applicant argued that claim 1 would not have been rendered obvious in view of Okada and Applicant's admitted prior art because Applicant's admitted prior art does not teach or suggest scanning successively the scan lines in a second field of a frame for display in an order reverse to that in the first field, as claimed. In particular, as discussed in the specification, Applicant's admitted prior art Figure 7

shows that positive writing is performed over four fields during a positive data voltage period and then negative writing is performed over fours fields of negative data voltage period, wherein the scan lines are successively scanned in the same order (from top to bottom) in each of the fields of the positive and negative data voltage periods.

In response to the arguments for patentability regarding claim 1, the Examiner (page 7 of the Office Action) asserts that "the change in polarity from the first field to the second field, as taught by the admitted prior art, could be read as an "order reverse". Therefore[,] the admitted prior art does teach scanning successively the scan lines in a second field of a frame in a order reverse to that in the first field." Applicant respectfully submits that the Examiner's position is incorrect since scanning successively the scan lines from top to bottom in a first field while applying a positive data voltage and then successively scanning the scan lines from top to bottom in a second field while applying a negative data voltage can not be reasonably interpreted by any standard to correspond to scanning successively the scan lines in first field and then scanning successively the scan lines in a second field in an order reverse to that in the first field. That is, scanning the scan lines while applying a positive or negative data voltage is not related or relevant to the order in which the scan lines are successively scanned.

Accordingly, Applicant respectfully submits that it is quite clear that Applicant's admitted prior art, as well as Okada, does not teach or suggest scanning successively the scan lines in a second field of a frame for display in an order reverse to that in the first field, as recited in claim 1. Thus, independent claim 1, as well as dependent claims 2-9, should be allowable because the combined references, do not teach or suggest all of the features of the claims.

Independent claim 10 recites a method for driving a liquid crystal display element in a frame composed of a first field and a second field comprising the steps of (a) writing data a plurality of times in the first field by use of a predetermined signal voltage; and (b) writing data a plurality of times in the second field by use of a signal voltage whose polarity is opposite to that of the predetermined signal voltage. The method of claim 10 is illustrated in Figures 24 and 25 of the present application.

The Examiner maintains that Okada et al. (Okada) discloses all of the features of independent claim 10 except "writing data a plurality of times to each of the scan lines", which the Examiner asserts is disclosed by Applicant's admitted prior art (Figures 6 and 7). In the Amendment filed March 25, Applicant argued that the claim 10 would not have been rendered obvious in view of Okada and Applicant's admitted prior art because the combined references do not teach or suggest writing data a plurality of times in a (single) scan line in the first field (i.e., a single field) by use of a predetermined signal voltage and writing data a plurality of times in a scan line in the second field (i.e., a single field) by use of a signal voltage whose polarity is opposite to that of the predetermined signal voltage, as claimed.

In response to the arguments for patentability regarding claim 10 , the Examiner asserts that "data is written four times in each scan line, and the admitted prior art [Figure 7] does teach writing data a plurality of times to each of scan lines."[1] While Applicant agrees with this

[1] In the Office Action, the Examiner incorrectly characterizes Applicant's argument as being "the applied art fails to teach or suggest writing data a plurality of time to each of the scans lines." However, Applicant argues the applied art fails to teach or suggest writing data a plurality of times to a scan line a plurality of times in single field (i.e., writing data a plurality of times in the scan line in the first field and writing data a plurality of times in the scan line in the second field).

statement by the Examiner, Applicant respectfully submits that it is quite clear that Applicant's admitted prior art Figure 7 does not teach or suggest "writing data a plurality of times in the scan line in the first field ... and writing data a plurality of times in the scan line in the second field", as recited in claim 10. As discussed in the Amendment filed March 25, Applicant's admitted prior art Figure 7 shows that positive writing is performed over four fields during a positive data voltage period and then negative writing is performed over four fields of a negative data voltage period (i.e., the positive data voltage period and the negative data voltage period each include four fields), wherein in each of the four fields data is successively written only one time to each of the scan lines starting with the top scan line. Thus, while data is written four times in each scan line in the positive and negative data voltage periods, data is only written one time in one scan line in each of the four fields of the positive and negative data voltage periods.

Accordingly, Applicant respectfully submits claim 10 should be allowable because the combined references do not teach or suggest writing data a plurality of times in a (single) scan line in the first field by use of a predetermined signal voltage and writing data a plurality of times in (single) scan line in the second field by use of a signal voltage whose polarity is opposite to that of the predetermined signal voltage, as recited in claim 10.

Independent claim 11 recites, in part, a method for driving a liquid crystal display element comprising writing data a plurality of times in a frame by use of a signal voltage whose polarity becomes alternately positive and negative a plurality of times during the frame at a predetermined frequency. The method of claim 11 is illustrated in Figures 26 and 27 of the present application. Although the Examiner again does not appear to specifically address the

subject matter of independent claim 11 in support of the rejection, Applicant respectfully submits that it is quite clear that neither Okada nor Applicant's admitted prior art teaches or suggests the subject matter of claim 11. Rather, Okada discloses writing once in black (i.e., a positive pulse) then writing once in white (i.e., a negative pulse) during one frame. Further, Applicant's admitted prior art Figure 7 discloses positive writing is performed successively over four fields during a positive data voltage period and then negative writing is performed successively over four fields of a negative data voltage period. That is, Applicant's admitted prior art Figure 7 merely discloses writing data writing data a plurality of times in a frame by use of signal voltage whose polarity becomes positive for one time period and then negative for one time period during the frame rather than writing data a plurality of times in a frame by use of a signal voltage whose polarity becomes alternately positive and negative a plurality of times during the frame at a predetermined frequency, as claimed.

Accordingly, Applicant respectfully submits that independent claims 10 and 11, as well as dependent claims 12-15, should be allowable because the applied references do not teach or suggest all of the features of the claims.

With regards to independent claims 16-19, Applicant respectfully submits that it quite clear that neither Okada nor Applicant's admitted prior art teaches or suggests the subject matter of claims 16-19 (which is illustrated in Figures 12, 14, 16 and 17, respectively).

In support of the rejection of independent claims 16-19, the Examiner simply states "scanning odd-numbered scan lines in a first frame and scanning even-numbered scan lines in the next frame is well know in the conventional art." However, the characterization of certain

limitations or parameters as obvious does not make the claimed invention, considered as a whole, obvious. It is incumbent upon the Examiner to establish a factual basis to support the legal conclusion of obviousness. In re Fine, 837 F.2d 1071, 5 U.S.P.Q.2d 1596 (Fed. Cir. 1988). This burden can only be satisfied by an objective teaching in the prior art or by cogent reasoning that the knowledge is available to one of ordinary skill in the art. See In re Lalu, (747 F.2d 703, 223 U.S.P.Q. 1257 (Fed. Cir. 1984)). Furthermore, an Examiner may not rely on official or judicial notice at the exact point where patentable novelty is argued, but must come forward with pertinent prior art. See Ex parte Cady, 148 U.S.P.Q. 162 (Pat. Off. Bd. App. and Inter. 1965). Accordingly, the Examiner requests that the Examiner cite a prior art reference which teaches scanning successively odd-numbered scan lines and scanning successively even-numbered or remove the § 103 rejection of record.

Moreover, Applicant respectfully submits that it is quite clear the neither Okada nor Applicant's admitted prior art disclose any of the claimed method steps of claims 16-19 including alternately scanning successively odd-numbered and even-numbered scan lines, scanning successively odd-numbered and even-numbered scan lines in orders reverse to each other, or scanning successively odd-numbered and even-numbered scan lines in different orders in the same field or different fields.

With regards to claim 16, the combined references do not teach or suggest scanning successively the even-numbered scan lines in a second field of the frame for display in an order reverse to the odd-numbered scan lines successively scanned in a first field, as claimed.

With regards to claim 17, the combined references do not teach or suggest scanning successively the even-numbered scan lines in a field of the frame for display in an order reverse to the odd-numbered scan lines successively scanned in the field, as claimed.

With regards to claim 18, the combined references do not teach or suggest scanning successively the odd-numbered and even-numbered scan lines in a second field of the frame for display in an order reverse to an order of scanning of the odd-numbered and even-numbered scan lines in the first field, as claimed.

With regards to claim 19, the combined references do not teach or suggest scanning successively the even-numbered scan lines in the first field of the frame for display in an order reverse to the odd-numbered scan lines successively scanned in the first field, scanning successively the odd-numbered scan lines in a second field of the frame for display in an order reverse to the odd-numbered scan lines successively scanned in the first field, and scanning successively the even-numbered scan lines in the second field of the frame for display in an order reverse to the even-numbered scan lines successively scanned in the first field, as claimed.

Lastly, Applicant respectfully submits that is quite clear that Bonnett, Kurematsu and Kamiya do not teach or suggest the above-described features of independent claims 1, 10, 11 and 16-19 which are clearly lacking from the combination of Okada and Applicant's admitted prior art. Accordingly, Applicant respectfully submits that independent claims 1, 10, 11 and 16-19, as well as dependent claims 2-9 and 12-15, should be allowable because the combined references do not teach or suggest all of the features of the claims.

In view of the above, reconsideration and allowance of this application are now believed to be in order, and such actions are hereby solicited. If any points remain in issue which the Examiner feels may be best resolved through a personal or telephone interview, the Examiner is kindly requested to contact the undersigned at the telephone number listed below.

The USPTO is directed and authorized to charge all required fees, except for the Issue Fee and the Publication Fee, to Deposit Account No. 19-4880. Please also credit any overpayments to said Deposit Account.

Respectfully submitted,

for Christopher R. Lipp
Registration No. 41,157

SUGHRUE MION, PLLC
2100 Pennsylvania Avenue, N.W.
Washington, D.C. 20037-3213
Telephone: (202) 293-7060
Facsimile: (202) 293-7860

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